In the Claims:

1. (Currently amended) A method for visualizing shear force acting on a skin surface, the shear force being sensed at distributed points on the skin surface by an array of sensors, comprising:

displaying an image of a mesh; and

deforming the mesh in a plane of the mesh in accordance with the shear force sensed by the array of sensors.

2. (Original) The method of claim 1, further comprising:

superimposing the image of the mesh on an outline of the skin surface.

3. (Original) The method of claim 1, wherein the mesh comprises a rectangular grid and intersections of lines of the grid when undeformed correspond to locations of said sensors in said array.

4. (Original) The method of claim 3, wherein points on outside edges of the grid comprise anchor points which create a fixed reference that frames the image.

5. (Original) The method of claim 4, wherein the anchor points are represented with zero force.

6. (Original) The method of claim 3, wherein the intersections of the lines of the grid in the image are displaced in proportion to the force measured at said sensors.

7. (Canceled)

8. (Currently amended) The method of claim ~~7~~ 1, wherein the skin surface comprises a plantar surface of a foot.

9. (Original) The method of claim 1, further comprising:

superimposing on the image of the mesh, a field of scaled arrows, wherein an arrow points in a direction of a force vector and a relative magnitude of an arrow is proportional to a sensed force magnitude.

10. (Original) The method of claim 1, further comprising:

sensing a second force acting on distributed points on said skin surface; and

using color mapping to display the sensed second force along with said image.

11. (Original) The method of claim 10, wherein the second force comprises force or pressure acting generally normal to said surface, and said color mapping comprises color mapping of at least one of the mesh and a plane parallel to said mesh.

12. (Original) The method of claim 11, wherein said color mapping comprises linear color mapping.

13. (Original) The method of claim 1, further comprising:

automatically determining a location of maximum value of at least one of: said measured force, skin bunching, skin stretching and skin twisting; and

highlighting said location in said image.

14. (Original) The method of claim 10, further comprising:

automatically determining a location of maximum value of at least one of: said measured forces, skin bunching, skin stretching and skin twisting; and

highlighting said location on said image.

15. (Original) The method of claim 14, wherein the measured force comprises shear, and the measured second force comprises pressure.

16. (Original) The method of claim 10, wherein said force and said second force are measured with the same array of sensors.

17. (Original) The method of claim 16, wherein said force comprises shear, and said second force comprises pressure.

18. (Currently amended) A method for visualizing forces acting on a skin surface, as detected at distributed points on said skin surface with an array of sensors, comprising:

automatically providing a first representation in a rendering window of detected forces at said distributed points acting in a plane of said skin surface; and

simultaneously automatically providing a second representation in the rendering window of detected forces at said distributed points acting in a direction generally normal to said skin surface.

19. (Original) The method of claim 18, wherein said first representation portrays shear and said second representation portrays pressure.

20. (Original) The method of claim 19, wherein said first representation comprises a mesh deformed within a plane of the mesh, and said second representation comprises color mapping.

21. (Original) The method of claim 18, wherein said first representation comprises directed scaled arrows.

22. (Original) The method of claim 18, wherein said first representation and said second representation comprise common arrows having a vector direction and magnitude corresponding to a composite vector of all detected forces.

23. (Original) The method of claim 18, further comprising:

automatically determining a location of maximum value of at least one of: the detected forces, skin bunching, skin stretching, and skin twisting; and

highlighting said location.

24. (Original) The method of claim 18, wherein said skin surface comprises a plantar surface of a foot, and further comprising providing a representation of said plantar surface along with said first and second representations.

25. (Currently amended) A system for visualizing forces acting on a skin surface, comprising:

a visualization and analysis engine for receiving data files containing force readings from an array of sensors at distributed locations of said skin surface, analyzing said data files and generating a first representation of forces at said distributed locations acting in a plane of said skin surface and a second representation of forces at said distributed locations acting generally normal to said skin surface; and

a rendering window for simultaneously displaying said first and second representations.

26. (Original) The system of claim 25 further comprising:

a graphical user interface for user control of the visualization and analysis engine;

data base manager for managing storage, categorization and retrieval of data files; and

sensor hardware interface modules for acquiring data files from a variety of different sensor hardware systems.

27. (Original) The system of claim 25, wherein said visualization and analysis engine comprises a data model and a visualization model; the data model comprising raw sensor data, analysis functions, and analyzed data; and the visualization model comprises visualization objects which operate on the analyzed data to create said first and second representations in said rendering window.

28. (Original) The system of claim 27, wherein said visualization objects include a mesh portrayed in said first representation, and a color plane for said second representation.

29. (Currently amended) An article of manufacture comprising a computer useable medium having computer readable program code means embodied therein for a system for visualizing forces acting on a skin surface, said article of manufacture comprising:

computer readable program code means for establishing a visualization and analysis engine for receiving data files containing force readings from an array of sensors at distributed locations of said skin surface, analyzing said data files and generating a first representation of forces at said distributed locations acting in a plane of said skin surface and second representation of forces at said distributed locations acting normal to said skin surface; and

computer readable program code means for causing said visualization and analysis engine to simultaneously display said first and second representations in a same rendering window.

30. (Original) The article of manufacture of claim 29 wherein said visualization and analysis engine comprises a data model and a visualization model; the data model comprises analysis functions for operating on raw sensor data to produce analyzed data; and the visualization model comprises visualization objects which operate on the analyzed data to create said first and second representations in said rendering window.

31. (Original) The article of manufacture of claim 30 wherein said visualization objects include a mesh portrayed in said first representation, and a color plane for said second representation.

32. (Original) The method of claim 1, further comprising: providing an array of sensors for sensing the force at the distributed points on the skin surface.

33. (Original) The method of claim 18, further comprising: providing an array of sensors for detecting the force at the distributed points on the skin surface.

34. (Original) The system of claim 25, in combination with an array of sensors for providing said force readings.